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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,310	07/02/2001	Ronen Sommer	SOMMERI	6600

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EXAMINER

CURS, NATHAN M

ART UNIT	PAPER NUMBER
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2633

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DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/895,310

Applicant(s)

SOMMER ET AL.

Examiner

Nathan Curs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6, 7, ^{8,9}12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brownmiller et al. ("Optical Link Interface Requirements", OIF2001.236, 23 April 2001, <http://www.cs.odu.edu/~sudheer/technical/contributions/standards/oif/oif2001.236.pdf>) in view of Afferton et al. (US Patent No. 6452906).

Regarding claim 1, Brownmiller et al. disclose optical link interface requirements for apparatus determining occurrence of a failure in an optical transport network (OTN) that is adapted to be associated with synchronous communication equipment (section 1 and section 4.1, the second, third and fifth bullets), the apparatus comprising: a failure indication detector operative to detect a failure occurring in the OTN (section 4.3.4, last bullet; and section 4.3.4.1, second bullet), where the fault message that reports LOF failures within the OTN implies a failure indication detector operative to detect a failure occurring in the OTN. Brownmiller et al. do not disclose that the failure indication detector detects a failure indication pattern and do not disclose a correlating unit adapted to be operatively associated with said failure indication detector and said synchronous communication equipment, and adapted to suppress a Loss-of-Frame (LOF) alarm in said synchronous communication equipment in response to receiving an indication that said failure indication pattern has been detected at the failure indication detector and receiving a LOF defect (dLOF) indication from said synchronous communication equipment.

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Afferton et al. disclose a fault detection and isolation system for a network where synchronous client equipment interfaces with OTNs (col. 1, lines 15-18 and lines 56-61). Afferton et al. also disclose a fault isolation signal protocol, where a fault isolation signal is transmitted via the synchronous signal overhead (col. 2, line 65 to col. 3, line 8), the fault isolation signal being generated when a failed signal is detected and sent to downstream NEs. The alarm corresponding to the failure is suppressed at downstream NEs when the fault isolation signal is detected (col. 3, lines 19-41; col. 4, lines 29-51; and col. 6, lines 21-29); the fault isolation signal is further characterized by an signal overhead and payload where the overhead bytes except for at least one byte and the payload are set to all ones (col. 3, lines 19-30). Further, Afferton et al. disclose a downstream NE detecting a LOF defect corresponding to the all ones payload, but where the LOF alarm is suppressed when the downstream NE correlates the LOF defect with the detected fault isolation signal (col. 7, line 49 to col. 8, line 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the fault isolation signal protocol of Afferton et al. as the means to control alarm propagation in the synchronous network of LOF alarms occurring in the OTN of Brownmiller et al., where a fault isolation signal as taught by Afferton et al. is generated based on the detection of the LOF fault message taught by Brownmiller et al. in the OTN, in order to suppress downstream alarming in the synchronous network, where the downstream synchronous NEs detect a LOF defect and correlate it with the detected fault isolation signal and suppress the LOF alarm. In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention that a correlating unit would correlate the LOF defect and fault isolation signal. The benefit of using the protocol of Afferton et al. for suppression of downstream alarms is that the protocol uses available overhead bytes of the synchronous signal and can also be used to isolate the fault.

Regarding claim 2, Brownmiller et al. in view of Afferton et al. disclose the apparatus according to claim 1 and wherein said failure indication detector is comprised in said synchronous communication equipment (Afferton et al.: col. 7, line 49 to col. 8, line 16).

Regarding claim 6, Brownmiller et al. in view of Afferton et al. disclose the apparatus according to claim 1, but do not specifically disclose the management system suppressing LOF alarms in the synchronous equipment. However, Afferton et al. disclose that the conventional alarm indication signal (AIS-P), from which the fault isolation signal (FIS-P) of Afferton et al. is related, has been conventionally provided to the management system by the same synchronous equipment (path terminating equipment) used to correlate the LOF defect and fault isolation signal in the invention of Afferton et al., where the management system detects and isolates the fault and disseminates fault information to the synchronous network elements (Afferton et al.: col. 2, lines 24-47). It would have been obvious to one of ordinary skill in the art at the time of the invention that the management system, in addition to conventionally detecting and isolating the fault and disseminating fault information, could suppress the alarm in the synchronous communication equipment, as this is well known in the art, although such functions conventionally controlled by the management system are possibly more cumbersome than detecting and suppressing the alarms in the network elements themselves, as taught by Afferton et al.

Regarding claim 7, Brownmiller et al. in view of Afferton et al. disclose the apparatus according to claim 1, and wherein said indication of detection of said failure indication pattern comprises the failure indication pattern (Afferton et al.: col. 3, lines 19-30).

Regarding claims 8 and 9, Brownmiller et al. in view of Afferton et al. disclose the apparatus according to claim 7, but do not disclose that said failure indication pattern comprises a PN-11 sequence characterized by a polynomial of the type $1+x^{.9}+x^{.11}$. However, it

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would have been obvious to one of ordinary skill in the art at the time of the invention to use the claimed pattern, since the applicant indicates "the failure indication pattern may preferably include a PN-11 failure indication pattern or sequence characterized by the polynomial of the type $1 + x^9 + x^{11}$... according to the recommendation set forth in ITU-T G.709" (specification page 7, lines 10-14). This is not a disclosure of criticality for the PN-11 pattern characterized by the polynomial of the type $1 + x^9 + x^{11}$. Absent any teaching of criticality, and further considering that the disclosed pattern is merely used to conform to the ITU-T G.709 recommendation, the claimed pattern would have been an obvious engineering design choice.

Regarding claim 12, Brownmiller et al. disclose optical link interface requirements for an optical transport network (OTN) that is adapted to be associated with synchronous communication equipment (section 1 and section 4.1, the second, third and fifth bullets), the apparatus comprising: a failure indication detector operative to detect a failure occurring in the OTN (section 4.3.4, last bullet; and section 4.3.4.1, second bullet), where the fault message that reports LOF failures within the OTN implies a failure indication detector operative to detect a failure occurring in the OTN. Brownmiller et al. do not disclose a failure indication generator operative to generate a failure indication pattern in response to a failure occurring in the OTN, and do not disclose a failure indication detector in the synchronous communication equipment operative to detect said failure indication pattern; and a correlating unit operatively associated with said failure indication detector and operative to suppress a Loss-of-Frame (LOF) alarm in the synchronous communication equipment in response to receiving an indication that said failure indication pattern has been detected from the failure indication detector and a LOF defect (dLOF) indication from said synchronous communication equipment. Afferton et al. disclose a fault detection and isolation system for a network where synchronous client equipment interfaces with OTNs (col. 1, lines 15-18 and lines 56-61). Afferton et al. also disclose a fault

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isolation signal protocol, where a fault isolation signal is transmitted via the synchronous signal overhead (col. 2, line 65 to col. 3, line 8), the fault isolation signal being generated when a failed signal is detected and sent to downstream NEs. The alarm corresponding to the failure is suppressed at downstream NEs when the fault isolation signal is detected (col. 3, lines 19-41; col. 4, lines 29-51; and col. 6, lines 21-29); the fault isolation signal is further characterized by a signal overhead and payload where the overhead bytes except for at least one byte and the payload are set to all ones (col. 3, lines 19-30). Further, Afferton et al. disclose a downstream NE detecting a LOF defect corresponding to the all ones payload, but where the LOF alarm is suppressed when the downstream NE correlates the LOF defect with the detected fault isolation signal (col. 7, line 49 to col. 8, line 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the fault isolation signal protocol of Afferton et al. as the means to control alarm propagation in the synchronous network of LOF alarms occurring in the OTN of Brownmiller et al., where a fault isolation signal with all ones payload and partial all ones overhead as taught by Afferton et al. is generated based on the detection of the LOF fault message taught by Brownmiller et al. in the OTN, in order to suppress downstream alarming in the synchronous network, where the downstream synchronous NEs detect a LOF defect and correlate it with the detected fault isolation signal and suppress the LOF alarm. In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention that a correlating unit would correlate the LOF defect and fault isolation signal. The benefit of using the protocol of Afferton et al. for suppression of downstream alarms is that the protocol uses available overhead bytes of the synchronous signal and can also be used to isolate the fault.

Regarding claim 13, Brownmiller et al. disclose optical link interface method for determining a failure in an optical transport network (OTN) that is adapted to be associated with synchronous communication equipment (section 1 and section 4.1, the second, third and fifth

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bullets), the apparatus comprising: a failure indication detector operative to detect a failure occurring in the OTN (section 4.3.4, last bullet; and section 4.3.4.1, second bullet), where the fault message that reports LOF failures within the OTN implies a failure indication detector operative to detect a failure occurring in the OTN. Brownmiller et al. do not disclose detecting a failure indication pattern which is generated in response to a failure occurring in the OTN; providing an indication of detection of said failure indication pattern and a Loss-of-Frame defect (dLOF) indication; and suppressing a LOF alarm in said synchronous communication equipment in response to said providing. Afferton et al. disclose a fault detection and isolation system for a network where synchronous client equipment interfaces with OTNs (col. 1, lines 15-18 and lines 56-61). Afferton et al. also disclose a fault isolation signal protocol, where a fault isolation signal is transmitted via the synchronous signal overhead (col. 2, line 65 to col. 3, line 8), the fault isolation signal being generated when a failed signal is detected and sent to downstream NEs. The alarm corresponding to the failure is suppressed at downstream NEs when the fault isolation signal is detected (col. 3, lines 19-41; col. 4, lines 29-51; and col. 6, lines 21-29); the fault isolation signal is further characterized by a signal overhead and payload where the overhead bytes except for at least one byte and the payload are set to all ones (col. 3, lines 19-30). Further, Afferton et al. disclose a downstream NE detecting a LOF defect corresponding to the all ones payload, but where the LOF alarm is suppressed when the downstream NE correlates the LOF defect with the detected fault isolation signal (col. 7, line 49 to col. 8, line 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the fault isolation signal protocol of Afferton et al. as the means to control alarm propagation in the synchronous network of LOF alarms occurring in the OTN of Brownmiller et al., where a fault isolation signal with all ones payload and partial all ones overhead as taught by Afferton et al. is generated based on the detection of the LOF fault message taught by Brownmiller et al. in

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the OTN, in order to suppress downstream alarming in the synchronous network, where the downstream synchronous NEs detect a LOF defect and correlate it with the detected fault isolation signal and suppress the LOF alarm. In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention that a correlating unit would correlate the LOF defect and fault isolation signal. The benefit of using the protocol of Afferton et al. for suppression of downstream alarms is that the protocol uses available overhead bytes of the synchronous signal and can also be used to isolate the fault.

3. Claims 3-5, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brownmiller et al. ("Optical Link Interface Requirements", OIF2001.236, 23 April 2001, <http://www.cs.odu.edu/~sudheer/technical/contributions/standards/oif/oif2001.236.pdf>) in view of Afferton et al. (US Patent No. 6452906) as applied to claims 1, 2, 6, 7, 12 and 13 above, and further in view of RFC 1595 ("Definitions of Managed Objects for the SONET/SDH Interface Type", March 1994, <http://www.faqs.org/rfcs/rfc1595.html>).

Regarding claim 3, Brownmiller et al. in view of Afferton et al. disclose the apparatus according to claim 1, and that the synchronous communication equipment is SONET/SDH equipment, but do not disclose that said synchronous communication equipment comprises an aligner, and that the correlating unit receives said dLOF indication from said aligner. RFC 1595 discloses that an LOF defect is generated based on the persistence of an OOF/SEF defect for a period of 3 ms, where an OOF occurs when frame alignment errors occur, and discloses a frame recovery circuit which achieves realignment (section 3.5, "SONET/SDH Terminology" – "Section Loss of Frame Failure"), thus disclosing that an aligner circuit is inherent to SONET/SDH communications equipment, and that the LOF defect is generated based on alignment errors received by the aligner. It would have been obvious to one of ordinary skill in

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the art at the time of the invention that the correlating unit would receive the LOF defect from the aligner, since the aligner being responsible for creating the LOF defect is conventional in the art, as shown by RFC 1595.

Regarding claim 4, Brownmiller et al. in view of Afferton et al. and further in view of RFC 1595 disclose the apparatus according to claim 3, wherein said aligner is operative to generate said dLOF indication in response to an incorrect synchronous frame alignment signal (FAS) (RFC 1595: section 3.5, "SONET/SDH Terminology" – "Section Loss of Frame Failure"), where the "Severely Errored Frame Defect" signal disclosed in RFC 1595 are incorrect synchronous frame alignment signals.

Regarding claim 5, Brownmiller et al. in view of Afferton et al. and further in view of RFC 1595 disclose the apparatus according to claim 4 and wherein said incorrect synchronous FAS is declared when the aligner does not detect a valid synchronous FAS within a predetermined time period (RFC 1595: section 3.5, "SONET/SDH Terminology" – "Section Loss of Frame Failure"), where the predetermined time period is the time period of four contiguous errored frame alignment words, as taught in RFC 1595.

Regarding claim 10, Brownmiller et al. disclose optical link interface method for determining a failure in an optical transport network (OTN) that is adapted to be associated with synchronous communication equipment (section 1 and section 4.1, the second, third and fifth bullets), the apparatus comprising: a failure indication detector operative to detect a failure occurring in the OTN (section 4.3.4, last bullet; and section 4.3.4.1, second bullet), where the fault message that reports LOF failures within the OTN implies a failure indication detector operative to detect a failure occurring in the OTN. Brownmiller et al. do not disclose synchronous communication equipment comprising: a failure indication detector operative to detect a failure indication pattern generated in response to a failure occurring in the OTN; an

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aligner operative to generate a Loss-of-Frame defect (dLOF) indication in response to said failure occurring in the OTN; and a correlating unit operatively associated with said failure indication detector and said aligner, and operative to suppress a Loss-of-Frame (LOF) alarm in the synchronous communication equipment in response to receiving an indication that said failure indication pattern has been detected from the failure indication detector and the dLOF indication from the aligner. Afferton et al. disclose a fault detection and isolation system for a network where synchronous client equipment interfaces with OTNs (col. 1, lines 15-18 and lines 56-61). Afferton et al. also disclose a fault isolation signal protocol, where a fault isolation signal is transmitted via the synchronous signal overhead (col. 2, line 65 to col. 3, line 8), the fault isolation signal being generated when a failed signal is detected and sent to downstream NEs. The alarm corresponding to the failure is suppressed at downstream NEs when the fault isolation signal is detected (col. 3, lines 19-41; col. 4, lines 29-51; and col. 6, lines 21-29); the fault isolation signal is further characterized by a signal overhead and payload where the overhead bytes except for at least one byte and the payload are set to all ones (col. 3, lines 19-30). Further, Afferton et al. disclose a downstream NE detecting a LOF defect corresponding to the all ones payload, but where the LOF alarm is suppressed when the downstream NE correlates the LOF defect with the detected fault isolation signal (col. 7, line 49 to col. 8, line 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the fault isolation signal protocol of Afferton et al. as the means to control alarm propagation in the synchronous network of LOF alarms occurring in the OTN of Brownmiller et al., where a fault isolation signal with all ones payload and partial all ones overhead as taught by Afferton et al. is generated based on the detection of the LOF fault message taught by Brownmiller et al. in the OTN, in order to suppress downstream alarming in the synchronous network, where the downstream synchronous NEs detect a LOF defect and correlate it with the detected fault

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isolation signal and suppress the LOF alarm. In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention that a correlating unit would correlate the LOF defect and fault isolation signal. The benefit of using the protocol of Afferton et al. for suppression of downstream alarms is that the protocol uses available overhead bytes of the synchronous signal and can also be used to isolate the fault. Brownmiller et al. in view of Afferton et al. disclose that the synchronous communication equipment is SONET/SDH equipment, but do not disclose that an aligner generates the LOF defect signal, and that the correlating unit receives said dLOF indication from said aligner. RFC 1595 discloses that an LOF defect is generated based on the persistence of an OOF/SEF defect for a period of 3 ms, where an OOF occurs when frame alignment errors occur, and discloses a frame recovery circuit which achieves realignment (section 3.5, "SONET/SDH Terminology" – "Section Loss of Frame Failure"), thus disclosing that an aligner circuit is inherent to SONET/SDH communications equipment, and that the LOF defect is generated based on alignment errors received by the aligner. It would have been obvious to one of ordinary skill in the art at the time of the invention that the correlating unit would receive the LOF defect from the aligner, and that the aligner is responsible for creating the LOF defect, as this is conventional in the art, as shown by RFC 1595.

Regarding claim 11, Brownmiller et al. in view of Afferton et al. and further in view of RFC 1595 disclose synchronous communication equipment according to claim 10, but do not specifically disclose the management system suppressing LOF alarms in the synchronous equipment in response to a failure determination indication pattern and LOF defect. However, Afferton et al. disclose that the conventional alarm indication signal (AIS-P), from which the fault isolation signal (FIS-P) of Afferton et al. is related, has been conventionally provided to the management system by the same synchronous equipment (path terminating equipment) used to

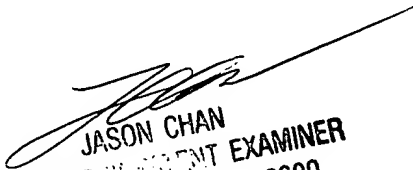
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correlate the LOF defect and fault isolation signal in the invention of Afferton et al., where the management system detects and isolates the fault and disseminates fault information to the synchronous network elements (Afferton et al.: col. 2, lines 24-47). It would have been obvious to one of ordinary skill in the art at the time of the invention that the management system, in addition to conventionally detecting and isolating the fault and disseminating fault information, could suppress the alarm in the synchronous communication equipment, as this is well known in the art, although such functions conventionally controlled by the management system are possibly more cumbersome than detecting and suppressing the alarms in the network elements themselves, as taught by Afferton et al.

Conclusion

4. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.


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